

CURRICULUM VITAE

NAME:

**Ali Ibrahim Fattom, Ph.D
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Nabi Biopharmaceuticals
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EDUCATION

Hebrew University, Jerusalem	B.Sc.	1974	Biology
Tel Aviv University, Tel Aviv	M.Sc.	1978	Microbiology
Hebrew University, Jerusalem	Ph.D.	1984	Microbial Ecology

PROFESSIONAL HISTORY:

Professional Experience:

1982-1983 Lecturer, Bir-Zeit University, Bir-Zeit, Palestine
Assistant Professor, Bir-Zeit University, Bir-Zeit, Palestine

1986-1990 Visiting Fellow/Associate, Laboratory of Development and Molecular Immunity, NICHD, Bethesda, MD

1991-1995 Senior Scientist and Principal Scientist, Univax Biologics, Rockville, MD.
Development of conjugate vaccines for Gram-positive and Gram-negative bacterial infections.

1995-1998 Director of Research

1998-2001 Senior Director, Research, Nabi, Rockville MD. Direct overall research programs in the development of vaccines for bacterial infections, anti-virals and vaccine for nicotine dependence.

2001-Present Vice President, Research, Nabi Biopharmaceuticals.

ACADEMIC ACTIVITIES:

Reviewer:

Bioconjugate Chemistry

Journal of Clinical Microbiology

Journal of Infectious Disease

Vaccine

Clinical Infectious Diseases

NIH study section member on vaccines,

PROFESSIONAL SOCIETIES:

International Endotoxin Society

American Society for Microbiology

American Chemical Society

International Staphylococcal Society

International Society for Vaccines.

International Staphylococcal Society

Society for Research on Nicotine and Tobacco.

HONORS AND AWARDS:

U.S. Patent 4,649,110 - Polymeric Substance and Method of Separating and Culturing Bacteria to Provide Substance Useful in Liquid Clarification and Soil Conditioning.

U.S. Patent 4,693,842 - Cyanobacterium-Produced Bioemulsifier Composition and Solution Thereof.

U.S. Patent 4,826,624 - Dispersing Liquid Hydrocarbon Into a Second Liquid.

US patent number: 5,770,208 - *Staphylococcus aureus* b-linked hexoseamine antigen.

US Patent number: 5,866,140 B1- Type 1 surface antigen associated with *Staphylococcus epidermidis*.

2001US Patent number: 6,232,082 B1 – Hapten –Carrier conjugates for treating and preventing nicotine addiction.

US Patent number: 6,294,177B1 – *Staphylococcus aureus* antigen – containing whole cell vaccine.

US Patent number: 6,194,161 B1 – Diagnostic 336.

US Patent number: 6,355,625 B1 – Composition of Beta-Glucans and Specific IVIG.

INVITED SPEAKER:

1. Fattom, A. Improving the immunogenicity of bacterial polysaccharides: conjugation, adjuvant or both. 1st Annual conference on new advances in vaccine technologies and applications. International Business Communication, Bethesda. Feb. 1994.
2. Fattom, A. Staphylococcal vaccines and IVIG. 8th International Symposium on the immunology of proteins and peptides. Rio Rico, Arizona. Nov. 1994
3. Fattom, A. Immunological approaches for dealing with *S. aureus* infections. Bacterial Multidrug Resistance. International Business Communication, Bethesda. Jan. 1995.
4. Fattom, A. Qualitative and quantitative immune response to capsular polysaccharides and their conjugates in mouse and man. 2nd Annual conference on new advances in vaccine technologies and applications. International Business Communication, Bethesda. Feb. 1995.
5. Fattom A. *S. aureus* capsular polysaccharide vaccines. Gordon Research Conferences on Staphylococcal Diseases. Irsee, Germany. Oct. 1995.
6. Fattom A. Protective immunity against *S. aureus* infections. VIII International Symposium on Staphylococcus and Staphylococcal Infections. June 1996. Aix La Baine, France.
7. Fattom A. Human hyperimmune IgG from immunized plasma donors for treatment and prevention of infections with multidrug resistant *S. aureus*. 5th Int. conf. on Human antibodies and hybridomas. Oct. 1996. Jerusalem.
8. Fattom A. The role of microbial polysaccharides in combating multidrug resistant nosocomial infections. Federation of American Societies for Experimental Biology. June 1997, Cooper Mountain, Colorado.
9. Fattom A. Another look into the formulation of multivalent bacterial polysaccharide conjugate vaccines. Symposium on Vaccinology, International Society for Vaccines, Sep. 1997, Leesburg, Virginia.
10. Fattom A. Preclinical and Clinical development of vaccines against *Staphylococcus aureus*. *Possibilities for active and passive vaccination against opportunistic infections*. Old Herborn University Seminars. June 2003. Herborn, Germany.

11. Fattom A. Development of StaphVAX, a bivalent conjugate vaccine against *Staphylococcus aureus* infections- from the bench to phase III clinical trial. *Immunological approaches against nosocomial infections*. 2003. Foundation Me'rieux. Annecy, France
12. Fattom A. Progress toward an efficacious immunotherapy against *Staphylococcus aureus* infections: Vaccines, Vaccine candidates, and antibodies under development. *Initiative for vaccine Research, Global Vaccine Research Forum, World Health Organization*. June 2004. Montreux, Switzerland.

LIST OF PUBLICATIONS:

1. Fattom, A., Fuller, S., Popst, M., Winston, S., Muenz, L., He, D., Naso, R., and Horwith, G. Safety and immunogenicity of a booster dose of *Staphylococcus aureus* types 5 and 8 capsular polysaccharide conjugate vaccine (StaphVAX[®]) in hemodialysis patients. 2004. *Vaccine: In Press*
2. Fattom AI, Horwith G, Fuller S, Propst M, and Naso R. Development of StaphVAX, a polysaccharide conjugate vaccine against *S. aureus* infection: from the lab bench to phase III clinical trials. *Vaccine* 2004; 22:880-7.
3. Walker RI, Blanchard T, Braun JM et al. Meeting summary: possibilities for active and passive vaccination against opportunistic infections. *Vaccine* 2004; 22:801-4.
4. Shinefield H, Black S, Fattom A et al. Use of a *Staphylococcus aureus* conjugate vaccine in patients receiving hemodialysis. *N Engl J Med* 2002; 346:491-6.
5. Robbins JB, Schneerson R, Horwith G, Naso R, and Fattom A. *Staphylococcus aureus* types 5 and 8 capsular polysaccharide-protein conjugate vaccines. *Am Heart J* 2004; 147:593-8.
6. Fattom A, Cho YH, Chu C, Fuller S, Fries L, and Naso R. Epitopic overload at the site of injection may result in suppression of the immune response to combined capsular polysaccharide conjugate vaccines. *Vaccine* 1999; 17:126-33.
7. O'Brien CN, Guidry AJ, Fattom A, Shepherd S, Douglass LW, and Westhoff DC. Production of antibodies to *Staphylococcus aureus* serotypes 5, 8, and 336 using poly(DL-lactide-co-glycolide) microspheres. *J Dairy Sci* 2000; 83:1758-66.
8. Campbell W, Hendrix E, Schwalbe R, Fattom A, and Edelman R. Head-injured patients who are nasal carriers of *Staphylococcus aureus* are at high risk for *Staphylococcus aureus* pneumonia. *Crit Care Med* 1999; 27:798-801.

9. Fattom AI, Sarwar J, Basham L, Ennifar S, and Naso R. Antigenic determinants of *Staphylococcus aureus* type 5 and type 8 capsular polysaccharide vaccines. *Infect Immun* 1998; 66:4588-92.
10. Essawi T, Na'was T, Hawwari A, Wadi S, Doudin A, and Fattom AI. Molecular, antibiogram and serological typing of *Staphylococcus aureus* isolates recovered from Al-Makased Hospital in East Jerusalem. *Trop Med Int Health* 1998; 3:576-83.
11. Berg S, Kasvi S, Trollfors B et al. Antibodies to group B streptococci in neonates and infants. *Eur J Pediatr* 1998; 157:221-4.
12. Na'was T, Hawwari A, Hendrix E et al. Phenotypic and genotypic characterization of nosocomial *Staphylococcus aureus* isolates from trauma patients. *J Clin Microbiol* 1998; 36:414-20.
13. Sood, R. K., and A. Fattom. Capsular polysaccharide-protein conjugate vaccines and intravenous immunoglobulins. 1998. *Exp. Opin. Invest. Drugs* 7:1-14.
14. Guidry A, Fattom A, Patel A, O'Brien C, Shepherd S, and Lohuis J. Serotyping scheme for *Staphylococcus aureus* isolated from cows with mastitis. *Am J Vet Res* 1998; 59:1537-9.
15. Fattom A. and R. Naso. 1997. Vaccines for *S. aureus* infections. In *New Generation Vaccines*, Woodrow, G.C. and Levine M.M. (eds). Marcel Dekker Inc. New York, pp.979-988.
16. Guidry A, Fattom A, Patel A, and O'Brien C. Prevalence of capsular serotypes among *Staphylococcus aureus* isolates from cows with mastitis in the United States. *Vet Microbiol* 1997; 59:53-8.
17. Lee JC, Park JS, Shepherd SE, Carey V, and Fattom A. Protective efficacy of antibodies to the *Staphylococcus aureus* type 5 capsular polysaccharide in a modified model of endocarditis in rats. *Infect Immun* 1997; 65:4146-51.
18. Fattom AI and Naso R. *Staphylococcus aureus* vaccination for dialysis patients--an update. *Adv Ren Replace Ther* 1996; 3:302-8.
19. Fattom AI, Sarwar J, Ortiz A, and Naso R. A *Staphylococcus aureus* capsular polysaccharide (CP) vaccine and CP-specific antibodies protect mice against bacterial challenge. *Infect Immun* 1996; 64:1659-65.
20. Kotloff KL, Fattom A, Basham L, Hawwari A, Harkonen S, and Edelman R. Safety and immunogenicity of a tetravalent group B streptococcal polysaccharide vaccine in healthy adults. *Vaccine* 1996; 14:446-50.

21. Basham LE, Pavliak V, Li X et al. A simple, quantitative, reproducible avidin-biotin ELISA for the evaluation of group B streptococcus type-specific antibodies in humans. *Vaccine* 1996; 14:439-45.
22. Fattom AI and Naso R. Staphylococcal vaccines: a realistic dream. *Ann Med* 1996; 28:43-6.
23. Welch PG, Fattom A, Moore J, Jr. et al. Safety and immunogenicity of *Staphylococcus aureus* type 5 capsular polysaccharide-Pseudomonas aeruginosa recombinant exoprotein A conjugate vaccine in patients on hemodialysis. *J Am Soc Nephrol* 1996; 7:247-53.
24. Naso R and Fattom A. Polysaccharide conjugate vaccines for the prevention of gram-positive bacterial infections. *Adv Exp Med Biol* 1996; 397:133-40.
25. Naso R., and A. Fattom. Polysaccharide conjugate vaccines for the prevention of gram positive bacterial infections. 1996. In: Cohen, S. and Schafferman A. (eds): *Novel Strategies in Design and Production of Vaccines*, Plenum Press, New York, pp: 133-140.
26. Sood, R.K., A. Fattom, V. Pavliak, and R.B. Naso. Capsular polysaccharides-protein conjugate vaccines. 1996. *Drug Discovery Today* 1:381-387.
27. Fattom A, Li X, Cho YH et al. Effect of conjugation methodology, carrier protein, and adjuvants on the immune response to *Staphylococcus aureus* capsular polysaccharides. *Vaccine* 1995; 13:1288-93.
28. Robbins JB, Schneerson R, Vann WF, Bryla DA, and Fattom A. Prevention of systemic infections caused by group B streptococcus and *Staphylococcus aureus* by multivalent polysaccharide-protein conjugate vaccines. *Ann N Y Acad Sci* 1995; 754:68-82.
29. Fattom A. Qualitative and quantitative immune response to bacterial capsular polysaccharides and their conjugates in mouse and man. 1995; In Atassi, Z. and Bixler, G. (eds). *Immunology of Proteins and Peptides VIII*, Plenum Press, New York, pp. 131-139.
30. Coughlin RT, Fattom A, Chu C, White AC, and Winston S. Adjuvant activity of QS-21 for experimental *E. coli* 018 polysaccharide vaccines. *Vaccine* 1995; 13:17-21.
31. Daum RS, Fattom A, Freese S, and Karakawa W. Capsular polysaccharide serotypes of coagulase-positive staphylococci associated with tenosynovitis, osteomyelitis, and other invasive infections in chickens and turkeys: evidence for new capsular types. *Avian Dis* 1994; 38:762-71.

32. Fattom A, Schneerson R, Watson DC et al. Laboratory and clinical evaluation of conjugate vaccines composed of *Staphylococcus aureus* type 5 and type 8 capsular polysaccharides bound to *Pseudomonas aeruginosa* recombinant exoprotein A. *Infect Immun* 1993; 61:1023-32.
33. Fattom A, Shepherd S, and Karakawa W. Capsular polysaccharide serotyping scheme for *Staphylococcus epidermidis*. *J Clin Microbiol* 1992; 30:3270-3.
34. Fattom A, Shiloach J, Bryla D et al. Comparative immunogenicity of conjugates composed of the *Staphylococcus aureus* type 8 capsular polysaccharide bound to carrier proteins by adipic acid dihydrazide or N-succinimidyl-3-(2-pyridyldithio)propionate. *Infect Immun* 1992; 60:584-9.
35. Schneerson R, Fattom A, Szu SC et al. Evaluation of monophosphoryl lipid A (MPL) as an adjuvant. Enhancement of the serum antibody response in mice to polysaccharide-protein conjugates by concurrent injection with MPL. *J Immunol* 1991; 147:2136-40.
36. Lue C, Prince SJ, Fattom A, Schneerson R, Robbins JB, and Mestecky J. Antibody-secreting peripheral blood lymphocytes induced by immunization with a conjugate consisting of *Streptococcus pneumoniae* type 12F polysaccharide and diphtheria toxoid. *Infect Immun* 1990; 58:2547-54.
37. Fattom A, Lue C, Szu SC et al. Serum antibody response in adult volunteers elicited by injection of *Streptococcus pneumoniae* type 12F polysaccharide alone or conjugated to diphtheria toxoid. *Infect Immun* 1990; 58:2309-12.
38. Fattom A, Schneerson R, Szu SC et al. Synthesis and immunologic properties in mice of vaccines composed of *Staphylococcus aureus* type 5 and type 8 capsular polysaccharides conjugated to *Pseudomonas aeruginosa* exotoxin A. *Infect Immun* 1990; 58:2367-74.
39. Robbins JB, Schneerson R, Szu SC et al. Prevention of invasive bacterial diseases by immunization with polysaccharide-protein conjugates. *Curr Top Microbiol Immunol* 1989; 146:169-80.
40. Fattom A, Vann WF, Szu SC et al. Synthesis and physicochemical and immunological characterization of pneumococcus type 12F polysaccharide-diphtheria toxoid conjugates. *Infect Immun* 1988; 56:2292-8.
41. Sood RK, Bhadti VS, Fattom AI et al. Novel ring-expanded nucleoside analogs exhibit potent and selective inhibition of hepatitis B virus replication in cultured human hepatoblastoma cells. *Antiviral Res* 2002; 53:159-64.

42. Zhang N, Chen HM, Koch V et al. Potent inhibition of NTPase/helicase of the West Nile Virus by ring-expanded ("fat") nucleoside analogues. *J Med Chem* 2003; 46:4776-89.
43. Zhang N, Chen HM, Koch V et al. Ring-expanded ("fat") nucleoside and nucleotide analogues exhibit potent in vitro activity against flaviviridae NTPases/helicases, including those of the West Nile virus, hepatitis C virus, and Japanese encephalitis virus. *J Med Chem* 2003; 46:4149-64.
44. Zhang N, Chen HM, Sood R et al. in vitro inhibition of the measles virus by novel ring-expanded ('fat') nucleoside analogues containing the imidazo[4,5-e]diazepine ring system. *Bioorg Med Chem Lett* 2002; 12:3391-4.
45. Malin DH, Alvarado CL, Woodhouse KS et al. Passive immunization against nicotine attenuates nicotine discrimination. *Life Sci* 2002; 70:2793-8.
46. Tuncok Y, Hieda Y, Keyler DE et al. Inhibition of nicotine-induced seizures in rats by combining vaccination against nicotine with chronic nicotine infusion. *Exp Clin Psychopharmacol* 2001; 9:228-34.
47. Malin DH, Lake JR, Lin A et al. Passive immunization against nicotine prevents nicotine alleviation of nicotine abstinence syndrome. *Pharmacol Biochem Behav* 2001; 68:87-92.
48. Hieda Y, Keyler DE, Ennifar S, Fattom A, and Pentel PR. Vaccination against nicotine during continued nicotine administration in rats: immunogenicity of the vaccine and effects on nicotine distribution to brain. *Int J Immunopharmacol* 2000; 22:809-19.
49. Pentel PR, Malin DH, Ennifar S et al. A nicotine conjugate vaccine reduces nicotine distribution to brain and attenuates its behavioral and cardiovascular effects in rats. *Pharmacol Biochem Behav* 2000; 65:191-8.
50. Shilo, M. and Fattom, A.: The ecology and adaptive strategies of benthic cyanobacteria. In: *Aspects of Microbial Metabolism and Ecology*, (Ed.) G.A. Codd, Academic Press, pp.175-186, 1984.
51. Fattom, A. and Shilo, M.: Hydrophobicity as an adhesion mechanism of benthic cyanobacteria. App. Environm. Microbio. 47:135-143, 1984.
52. Fattom, A. and Shilo, M.: *Phormidium J-1* bioflocculant, production and activity. Arc. Microbiol. 139:421-426, 1984.
53. Fattom, A. and Shilo, M.: Production of emulcyan by *phormidium J-1*: Its activity and function. FEMS Microbiol. Ecol. 31:3-9, 1985.

54. Oren, A., Fattom, A., Padan, E., and Teitz, A.: Unsaturated fatty acid composition and biosynthesis in *Oscillatoria limnetica* and other cyanobacteria. Arch. Microbiol. 141:138-142, 1985.